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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/684,865	10/14/2003	Rida M. Hamza	H0005041 (256.149US1)	4784

128 7590 02/01/2008
HONEYWELL INTERNATIONAL INC.
101 COLUMBIA ROAD
P O BOX 2245
MORRISTOWN, NJ 07962-2245

EXAMINER	
ROBERTS, JESSICA M	
ART UNIT	**PAPER NUMBER**
2621	

MAIL DATE	DELIVERY MODE
02/01/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/684,865	Applicant(s) HAMZA ET AL.
	Examiner Jessica Roberts	Art Unit 2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01/02/2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/19/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 01/02/2008 has been entered.

Response to Arguments

2. Applicant's arguments filed 01/02/2008 have been fully considered but they are not persuasive.

3. With respect to applicants argument in regards to that there is no disclosure in Pavlidis of analyzing an image in both grey scale and a color domain.

4. The examiner respectfully disagrees. Pavlidis discloses to employ a dual channel camera system where the camera is capable of operating in both color and grey scale. Pavlidis discloses where the IFOV is computed based on the camera resolution, which is either 480 or 570 pixels (V. *Optical and System Design* pg. 1482 second column, last paragraph and pg 1483 second column first paragraph).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

> the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1-27 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Pavlidis ET al.: Urban Surveillance Systems, 2001 in view of Monroe et al., US-2003/0025599.

Regarding **claim 1**, Pavlidis discloses a method of detecting motion in an area the method comprising: receiving frames of the area (Pavlidis, DETER, *Introduction* pg. 1478 and Fig. 3 and 4); using a high performance motion detection algorithm on remaining frames to detect true motion from noise (Pavlidis, the connected component algorithm filters out blobs with area less than 27 pixels as noise, *C. Multiple Hypotheses Predictive Tracking* pg. 1448 and Section V) wherein the high performance detection algorithm operates on a frame having pixels in grey scale for a selected portion of the frame, and operates on the frame having pixels in RGB or other color domain for another portion of the frame (dual channel camera systems. These systems utilize a medium-resolution color camera during the day and a high resolution gray scale camera during the night and operates on frames having pixels in RGB or other color domain for

other portions of the images. Further, disclosed is the camera is capable of operating both the color and grey scale domain, which reads upon the claimed limitation. V. Optical and System Design, pg 1482-1483).

Pavlidis is silent in regards to using a high-speed motion detection algorithm to remove frames in which a threshold amount of motion is not detected. However, Monroe discloses a high-speed motion detection algorithm to remove frames in which a threshold amount of motion is not detected (only changes in the data need be transmitted; see page 4, paragraph [0032], [0033]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 2**, Pavlidis is silent in regards to the high-speed detection algorithm operates in a compressed image domain. However, Monroe teaches the high-speed detection algorithm operates in a compressed image domain (Monroe, [compressed digital images; page 4, paragraph [0028]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 3**, Pavlidis is silent in regards to the high speed detection algorithm operates in an uncompressed image domain. However, Monroe teaches the

high speed detection algorithm operates in an uncompressed image domain (Monroe, optionally compressed; page 16, paragraph [0212]) image domain.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 4**, the combination of Pavlidis and Monroe as a whole further teach the high performance detection algorithm operates in an image pixel domain (Pavlidis, motion segmentation through a multi-normal representation at the pixel level, pg 1482, first column).

Regarding **claim 5**, the combination of Pavlidis and Monroe as a whole further teach the high speed motion detection algorithm represents portions of images in grey scale pixels (Pavlidis, *V. Optical and System Design,* pg 1482).

Regarding **claim 6**, the combination of Pavlidis and Monroe as a whole further teach the image are represented in grey scale when such portions are not high in color content (Pavlidis, *V. Optical and System Design,* pg 1482).

Regarding **claim 7**, the combination of Pavlidis and Monroe as a whole further teach the selected portions of the images are low in color content (Pavlidis discloses the use of a dual channel camera system that uses a medium resolution color camera during the day, and a high resolution grey scale camera during the night, V. *Optical and System Design,* page 1482. Monroe discloses the ability to select areas of a selected scene for monitoring activity level paragraph [0044]).

Regarding **claim 8**, the combination of Pavlidis and Monroe as a whole further teach the portions are based on an initial set up (Pavlidis. VI. Object Segmentation and Tracking, *Initialization*, pg. 1484, Monroe discloses defaulting and programmable modes; page 4, paragraph [0028]).

Regarding **claim 9**, Pavlidis is silent in regards to wherein the selected portions are determined based on a real time assessment of dynamic change in the area. However, Monroe teaches wherein the selected portions are determined based on a real time assessment of dynamic change in the area (Monroe, [0045]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 10**, Pavlidis is silent in regards to the threshold is predetermined. However, Monroe teaches wherein the threshold is predetermined (defined threshold would be indicative of motion; page 8 paragraph [0115]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 11**, Pavlidis is silent in regards to the area is a predetermined area. However, Monroe discloses the area is a predetermined area (remote; page 8 paragraph [0108]) area.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 12**, the combination of Pavlidis and Monroe as a whole further teach the frames comprise pixels, and where such pixels are group in blocks of pixel, each block being represented as an average or median in the color domain (Pavlidis, pg 1485, first column).

Regarding **claim 13**, Pavlidis is silent in regards to the blocks of pixels are of different sizes. However, Monroe teaches wherein the blocks of pixels are of different sizes (decimation various numbers of pixels will effectively change the sizes of pixel blocks; page 9 paragraph [0118]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 14**, Pavlidis is silent in regards to the area requiring higher resolution to detect motion are represented by blocks of smaller number of pixels. However, Monroe teaches wherein portions of the area requiring resolution to detect motion are represented by blocks of smaller number of pixels (page 9, paragraph [0116] and fig. 2:21-24) Monroe discloses using the histogram to determine the degree of change, where pixels are grouped according the value of change.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 15**, Pavlidis is silent in regards to the number of pixels in the blocks is varied based on depth of field. However, Monroe teaches wherein the number of pixels in the block is varied based on depth of field (the degree of motion; page 9, paragraph [0121] and see fig. 3: 34).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 16**, Pavlidis teach a method of detecting motion in an area (DETER, a prototype urban surveillance system, *Introduction*, pg 1478), the method comprising: receiving frames of the area (DETER, *Introduction* pg. 1478 and Fig. 3 and 4); using a high speed motion detection algorithm to remove frames in which a threshold of motion is not detected; using a high performance motion detection algorithm on remaining frames to detect true motion from noise (Pavlidis, the connected component algorithm filters out blobs with area less than 27 pixel as noise VI. *C. Multiple Hypothesis Predictive Tracking,* pg. 1488), wherein the frames comprise pixel (motion segmentation though a multi-normal representation at the pixel level, pg 1482), and where such pixels are grouped in blocks of pixels, each block being represented as

a single average pixel (Jefferys divergence measures pg 1485-1487); and initializing a model of the area comprising multiple weighted distributions for each block of pixels (mixture of Normals; Pavlidis, *III.* Relevant Technical Work, page 1481 and VI. Object Segmentation and Tracking: *A. Initializing*, page 1485-1487). Pavlidis is silent in regards to using a high speed motion detection algorithm to remove frames in which a threshold of motion is not detected.

However, Monroe discloses using a high speed motion detection algorithm to remove frames in which a threshold of motion is not detected (see page 4, paragraph [0032], [0033]). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 17**, Pavlidis is silent in regards to the frames comprise blocks of pixels, and wherein a number of weighted distributions per block is varied. However, Monroe discloses wherein the frames comprise blocks of pixels, and wherein a number of weighted distributions per block is varied (Monroe, continuous variable; page 9, paragraph [0121]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 18**, the combination of Pavlidis and Monroe further teaches the number of weighted distributions varies (Monroe, continuous variable; page 9, paragraph [0121]) between 1 and 5 (Pavlidis, see VI. Object Segmentation and Tracking, page 1485).

Regarding **claim 19**, the combination of Pavlidis and Monroe, as a whole further teach the number of weighted distributions is varied based on dynamics of motions or expectations (Pavlidis, VI. Object Segmentation and Tracking, *Model Update When a Match is Found,* pg. 1486-1487).

Regarding **claim 20**, the combination of Pavlidis and Monroe, as a whole further teach the model is based on N successive frames and the weight is based on a count (Pavlidis, VI. Object segmentation and Tracking, *A. Initialization page* 1484-1485)

Regarding **claim 21**, see analysis and rejection of claim 16. Furthermore, a predefined number of weighted distributions is selected for each block of pixels, and wherein the weights are normalized as claimed are discussed in the combined teaching of Monroe and Pavlidis (mixture of Normals; Pavlidis, *III.* Relevant Technical Work, page 1481 and VI. Object Segmentation and Tracking: *A. Initializing*, page 1485).

Regarding **claim 22**, the combined teaching of Pavlidis and Monroe as a whole further teach if pixels in a new frame match the model, the model weights and distributions are updated (Pavlidis, VI. Object Segmentation and Tracking: *A. Initializing*, page 1485).

Regarding **claim 23**, the combined teaching of Pavlidis and Monroe as a whole further teach a (modified Jeffery's measure) is used to determine a match or non-match

in the distributions (Pavlidis; VI. Object Segmentation and Tracking, *B Segmentation of Moving Objects*: The Matching Operation, page 1486).

Regarding **claim 24**, the combined teaching of Pavlidis and Monroe as a whole further teach a predetermined number of frames have pixels or blocks that do not match the model, the lowest weighted distributions of the pixels or blocks of a background are removed from the model and replaced by ones derived from a foreground distribution once a derived number of sequences is reached within the last N successive frames (Pavlidis, VI. Object Segmentation and Tracking *B. Segmentation of Moving Objects:* Model Update When a Match is Not Found; page 1487).

Regarding **claim 25**, Pavlidis is silent in regards to the high speed motion detection algorithm operates in a compressed image domain. However, Monroe teaches wherein the high speed motion detection algorithm operates in a compressed image domain (see Monroe, page 4, paragraph [0029]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 26**, Pavlidis is silent in regards to the high speed motion detection algorithm operates in an uncompressed image domain. However, Monroe teaches wherein the high speed motion detection algorithm operates in an uncompressed image domain (in Monroe, the calculation of the difference between two

images is tabulated uncompressed or compressed, see page 4, paragraph [0032], also page 16, paragraph 0212, optionally compressed).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

8. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Monroe et al., US-2003/0025599 in view of Pavlidis et al.: Urban Surveillance Systems, 2001.

Regarding **claim 27**, Monroe discloses a system for detecting motion in a monitored area, the system comprising: means for receiving video images of the monitored area; a fast video motion segmentation (VMS) module that rejects still images that do not portray any motion (motion of the fan is not detected as motion, and does not cause unnecessary transmission and storage of still image data page 9, paragraph [0121]); a robust VMS module that detects motion of an object in the monitored area (remote area; page 3, paragraph [0026]) ; and a resource management controller that initializes, controls, and adapts the fast and robust VMS modules; (adaptive; page 9, paragraph [0123] and page 10, paragraph [0124]. Monroe discloses that the system is adaptive, thus necessitates a controller to initialize, control, and adapt the system for motion detection. Monroe is silent in regards to wherein the VMS module operates on frames having pixels in grey scale for selected portions of the images, and operates on frames having pixels in RGB or other color domain for other portions of the images.

Pavlidis teaches wherein the VMS module operates on a frame having pixels in grey scale for a selected portion of the frame, and operates on the frame having pixels in RGB or other color domain for another portion of the frame (dual channel camera systems. These systems utilize a medium-resolution color camera during the day and a high resolution gray scale camera during the night, wherein the VMS module operates on frames having pixels in grey scale for selected portions of the images, and operates on frames having pixels in RGB or other color domain for other portions of the images. Further, disclosed is the camera is capable of operating both the color and grey scale domain, which reads upon the claimed limitation. V. Optical and System Design, pg 1482-1483).

Therefore it would have been obvious to one of ordinary skill in the art at time of the invention to combine the method of Monroe with the teaching of Pavlidis dual channel camera for improving processing speed and accuracy as discussed in Pavlidis.

Examiner's Note

The referenced citations made in the rejection(s) above are intended to exemplify areas in the prior art document(s) in which the examiner believed are the most relevant to the claimed subject matter. However, it is incumbent upon the applicant to analyze the prior art document(s) in its/their entirety since other areas of the document(s) may be relied upon at a later time to substantiate examiner's rationale of record. A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. W.L. Gore & associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

However, "the prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed...." In re Fulton, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004).

Conclusion

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

2. Ng, et al., US-5, 731,832 Apparatus and method for detecting motion in a video signal

3. Takemoto et al., US-6, 278,533 Method of processing image signal

4. Hanko et al., US-6,493,041 Method and apparatus for the detection of motion in video

5. Bovyrin et al., US-2005/0104964 Method and apparatus for background segmentation based on motion localization

6. DiPoala et al., US-2005/0127298 Method and apparatus for reducing false alarms due to white light in a motion detection system

7. Zhou et al., US-2006/0158550 Method and system of noise-adaptive motion detection in an interlaced video sequence

8. Takashi et al., US-6, 256,417 Image coding apparatus, image decoding apparatus, image coding method, image decoding method, image coding program recoding media, image decoding program recording media

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessica Roberts whose telephone number is (571) 270-1821. The examiner can normally be reached on 7:30-5:00 EST Monday-Friday, Alt Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold can be reached on (571) 272-7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Marsha D Banks-Harold

MARSHA D. BANKS-HAROLD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

/JMR/